

## Open Literature Review Summary

**Chemical Name:** Imidacloprid

**CAS No:** 138261413

### Record Number and Citation:

Schmuck-Schoning, Effects of Imidacloprid residues in maize Pollen on the developmental of small Bee Colonies Under Field conditions

### Summary of Study Findings:

This study was in compliance with good laboratory practice (GLP). The experiment tested the effects of imidacloprid on honeybees via maize pollen. Maize pollen was collected and tested for no previous pesticide contamination. After pollen were cleared, it was mixed with imidacloprid at nominal concentrations of 2, 5, 10 and 20 µg/kg.. The bees were also feed on uncontaminated sunflower honey as a carbohydrate source. Both source of food were available during the entire 39 day study.

Tunnel cages were constructed on oats plots treated with Sibutol mit haftmittel a fungicide (37.5% bitertanole and 2.3% fuberidazole). The oat field was free from any other treatments. Five tents, each containing hives and 1 concentration of imidacloprid 0, 2, 5, 10, and 20 µg/kg with the pollen. The behavioral endpoints included: mortality, comb cell production, food consumption, honey storage behavior, egg laying activity, breeding success and overall colony strength.

Foraging on honey and pollen was comparable in all control and test groups. Bees visited pollen feeder less when compared to honey feeders. Foraging pattern, Comb area with and without honey, and hive weight, among all test groups was consistent. Mortality at the hive was comparable but at the tent margins greatest at 20µg/kg of imidacloprid. The abundance of, capped and uncapped larvae, was equivalent.

### Rationale for Use:

After honeybees collected and used the pollen in the hive, no adverse effects were seen.

### Limitations of Study:

In the beginning the pollen container was robbed by mice from 0 to 5 days into the experiment. Due to this an exact amount of pollen collected by the hive could not be measured.

Pollen is typically fed to the larva for protein to help with growth. The larvae were not tested for amounts of imidacloprid ingested or any effect seen after growth.